Connecticut Technical High School System

Power Standards for Mathematics

Grade 10

Geometry

Trimester One

1 Two and Three Dimensional Measurement (two cycles)

*1.1 Calculating circumference and area of circles.
*1.2 Finding radius and diameter given either circumference or area of a circle.
*1.3 Calculating perimeter and area of polygons.
*1.4 Calculating missing dimensions of polygons given the perimeter or area.
*1.5 Solving authentic problems involving perimeter (circumference) and area.
*1.6 Calculating surface area and volume of three dimensional figures.
*1.7 Calculating the missing dimensions of three dimensional figures given either the surface area or volume.
*1.8 Solving authentic problems involving surface area and volume.

2 Basic Elements of Geometry (one cycle)

*2.1 Identifying patterns.
*2.2 Making conjectures.
*2.3 Verifying conjectures.

Trimester Two

3 Line and Angle Relationships (one cycle)

*3.1 Demonstrating how to bisect a segment and an angle using multiple approaches.
*3.2 Applying the concept of "sum of the parts equal the whole" to solve problems.
*3.3 Solving problems involving angle relationships.

4 Parallel and Perpendicular Lines (one cycle)

*4.1 Verifying that two lines are perpendicular.
*4.2 Solving problems involving perpendicular line.
*4.3 Verifying that two lines are parallel.
*4.4 Solving problems involving parallel lines.

5 Triangle Relationships (one cycle)

*5.1 Applying theorems to problem-solve.

Trimester Three

6 Congruent and Similar Figures (two cycles)

*6.1 Applying postulates to verify/prove that triangles are congruent.
*6.2 Applying proportional reasoning to problem-solve.
*6.3 Determining similarity by comparing ratios of corresponding sides.

7 Properties of Polygons (one cycle)

*7.1 Explaining how to determine the sum of the measures of all interior angles of a n-gon.

*The numbered power standards above represent essential and enduring core knowledge and skills. View entire curriculum at www.cttech.org.

Algebra 1

Trimester One

1 Arithmetic Concepts in Algebraic Setting (one cycle)

*1.1 Properly using the order of operations to evaluate variable expression at the proficient level.

*1.2 Writing algebraic (symbolic) expressions from verbal description at the proficient level.

*1.3 Writing verbal and algebraic models to solve problems at the proficient level.

*1.4 Modeling the four basic operations using real numbers on a number line and/or algebra tiles, at the proficient level.

*1.5 Correctly applying the rules for calculating with real numbers at the proficient level.

2 Linear Equations (two cycles)

*2.1 Symbolically model the steps necessary to solve 1-step and multi-step equations at the proficient level.

*2.2 Applying the algorithm used in solving 1-step and multi-step equations to solve problems involving multiple variables at a proficient level.

*2.3 Choosing and applying a strategy to solve ratio/rate and proportion problems at a proficient level.

Trimester Two

3 Graph and Interpret Linear Equations (three cycles)

*3.1 Writing verbal and algebraic models for problems at the proficient level.

*3.2 Representing a selected function or equation in multiple forms (verbal, data table, graphically, symbolically).

*3.3 Correctly plotting points on a graph at the proficient level.

*3.4 Identifying the linear pattern created by the plotted points from a table of values and that a linear function is continuous, at the proficient level.

*3.5 Applying the shortcut to graph an equation in Slope-intercept Form and equation in Standard Form.

*3.6 Organize given information and follow appropriate steps to write a linear equations in two variables at the proficient level.

Trimester Three

4 Integer Exponents (one cycle)

*4.1 Applying the Properties of Exponents, at the proficient level.

*4.2 Applying "order of operations" to simplify expressions that require the use of more than one of these properties at the proficient level.

*4.3 Applying scientific notation at the proficient level.

5 Polynomial Operations (one cycle)

*5.1 Apply the rules of integer operations to variable expressions at the proficient level.

6 Right Triangles (one cycle)

*6.1 Apply the Pythagorean Theorem and its converse.

Algebra II

Trimester One

***1.* Review and Extend Understanding of Linear Functions (two cycles)**

*1.1 Graphing real numbers on a number line.

*1.2 Solving simple and compound inequalities; representing solution algebraically and graphically.

*1.3 Solving linear applications.

*1.4 Writing equations and inequalities.

*1.5 Graphing equations and inequalities on the coordinate plan.

*1.6 Determining if lines are parallel or perpendicular.

*1.7 Writing the equation of line that is parallel or perpendicular to a given line.

*1.8 Solving problems involving linear equations/inequalities.

*1.9 Calculate the "regression equation" using the graphing calculator and/or Excel.

*1.10 Apply the regression equation to extrapolate and/or interpolate to solve authentic problems.

1. Solve Systems of Linear Equations (one cycle)

2.1 Solving systems of equations by graphing method.

Trimester Two

***2.* Solve Systems of Linear Equations (one cycle)**

2.2 Solving system of equations/inequalities by algebraic methods.

2.3 Writing and solving authentic problems involving two linear inequalities.

2.4 Representing solutions in different modes. (Rule of 4)

3. Quadratic Functions and Equations (two cycles)

*3.1 Graphing quadratic functions.

*3.2 Applying the quadratic formula and calculating the solution(s).

*3.3 Analyzing equations and determining the most appropriate method to apply when solving quadratic equations.

Trimester Three

***4.* Polynomials and Polynomial Functions (two cycles)**

*4.1 Applying the properties of exponents to evaluate expressions, at a proficient level.

*4.2 Applying the properties of exponents to simplify expressions, at the proficient level.

*4.3 Determine whether a function is a polynomial function.

*4.4 Graphing polynomial functions.

*4.5 Describe polynomial functions in words.

*4.6 Applying the properties of exponents on polynomial expressions.

***4.7** Solving authentic problems by analyzing the graph and evaluating the function.

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